

DRAGON



USER

March 1987

The independent Dragon magazine

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Editorial

THERE has been a certain amount of activity on the newsletter front recently. Leading through some of the more serious titles, such as Dragon Update and MICROnews, is a certain wealth of knowledge. But it is often in a half page here and a whole page there, nuggets of wisdom gathered quickly before some other matter intervenes. And it's not hard to see why: getting even a simple idea ready for publication is time-consuming work, and most Dragon writers are part-timers, fitting their contributions in when they can.

All the same, there is a temptation to address a small circle of user groups knowing that the nuggets will be accepted as they are, instead of taking the extra time and pains to beat them into shape for professional publication.

Dragon User calls on Dragon Users with expertise. These users interest this user in programming and applications. Next time you have an idea, ask yourself if you can put it across to several thousand readers, and if you like the look of that, drop us a line.

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How to submit articles

The quality of the material we can publish in Dragon User each month will be a very great asset. It depends on the quality of the material you can send us. You can meet us in your Dragon. The Dragon Computer will be published in the next issue a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 5000 words long. All submissions should be typed. Please leave in the margins and a 25.000 space between each line. Progress should whenever possible be computer printed on plain white paper and be accompanied by a copy of the program.

We cannot guarantee to return every submitted article to program. We please send a copy of your work to the publisher. If you wish to receive a printed version of your work, please include a stamped address and envelope.

Draught stopped

In the January issue of Dragon User you mention a problem with the Graphics program in Error the Dragon. I have an immediate listing and the bug seems to be in line 5200. It should be 120, 180 & 44. It should read 120, 140 & 55.

Derek Goss
154 The Avenue
Sudbury Co. Essex
Suffolk
Tues 102

Bought out

I refer to Keith Gaudin's letter (DU January 1987) and the editors now asking for comments about Cumans DOS. I bought a Cumans system a few months ago and really discovered the various bugs that Keith refers to. In listed data files are frequently not updated properly or at all and in some applications the core files also can be corrupted. These faults have been properly documented by Mike Perry at Commodore Software and I suggest any other articles regarding my problems with Cumans DOS contact him.

Unable to obtain any address from Cumans I bought Commodore's Super DOS which I find totally error free in addition. Mike wasn't enough to protect me with a two-byte patch for Smithers's Electronic Author to fix a non-allocating CP/Memory call.

At least I have a trouble free system no thanks to Cumans despite 1 as no correspondence that they are no longer producing Dragon controllers. Although I do not have any I feel hard on people who do the controller produced by PNP. Can manufacturers use the Super DOS ROM and about therefore be a good solution.

John Black
15 Downside Road
Aldershot
Wiltshire
Surrey RT15 2HC

Where's the DOS

First would like to thank those programmers who contribute so many varied programs to DU (from D'Arcy Grant's College Peter Whistler Jason O'Brien's etc.) Without these people and programs for us some people including me would not get their Drogans on!

Unfortunately we are not all blessed with this programing ability so while I try to do and invent others just enter me hard working brains is big thank you one and all!

New to other matters. Can you tell me if I was to buy a disc drive would the DOS be included in the package or would it be plug in switch on and go. I also could not quite a few requests for printed listings I have a Brother P22 printer and can print listings but not graphics material and would like to set up such a service. Can you give me a few pointers?

One other thing I would like to ask could it be possible with collaboration among programmers to write a program along the lines of Star Wars with 3-D graphics in wire frames or computer-aided with a view out of the cockpit or being in-land out of the station. It would make a good game for students in a Christmas DU. Or could somebody tell me if I am asking too much from a Dragon 32 or 64.

Incredibly well done Dragon User you're keeping the Dragon alive.

J R Clayton
379 London Road
St Leonards-on-Sea
Dev Sussex
TN38 6BC

The whereabouts of the DOS depends entirely on the printer. Some have a built in DOS, others use a drive, have a DOS on disc. As far as the Dragon is concerned, you are aware of the listing of what a computer based ROM DOS. That's not enough good advice on such things because of buying from a general computer dealer a printer that you have not had a chance to try out with your

machine — this tends to be a problem as most dealers simply do not hold Dragon hardware.

Sprint wanted

Could you please ask the other readers of Dragon User if they have spare sets of instructions (original or photocopied) for Sprint/Exec/Compiler/Class Software since I have lost mine. I would be willing to pay any expenses incurred. I have lost everything. Class but the list is dead and I have been told they no longer exist.

Also I am looking for some back issues of Dragon User if anyone has May 80, June 80 or September 83 issues and would like to sell them, then they can contact me at the address below.

Frank Ward
11 Downhove Close
New Bromwich
West Midlands
B20 6AU

Stylo solution

I notice that there have been several references in Brian Curgen's Agency Column of Stylmag and the directed double line feed. Brian's ad normally specifies 16c and then just says Stylmag. It does not appear to work since out of 10 copies only 2 produce another line feed.

As per the Stylmag ad which no-one seems to have successfully picked a convenient answer lies in the software program Stylmag. Using Debug or a similar program at offset 01000 replace the existing value of 0016 by 0000 you will send to VERIFY the bits correct by cyclic redundancy check and create a 177c command to give the file execute permission. That's all but if anyone cannot manage this they can contact

me in copy of mine and I will post it for them if they replace return postage.

Also Stylmag will not be changed to 80 columns for use with the Dragon (as based by changing offset 01400 to 044 and verifying as before).

I owe much of the above ad vote to the DG 9 User Group whose address can be found in my article DG-98888 which is published in the above.

D Ian Bentley
11 Hush Road
Glossop
Greater
Manchester
M20 3AB

Just one line...

I have had a few letters from people who have found the graphic files corrupted in Commodore's Quest of many months ago. After a careful search I discovered that line 790 was missing. This may have been lost during printing.

The line is:
DRAW 0M 00000,0000
HUE,0,0,0,0,0,0,0,0,0,0,0
DOL,0,0,0,0,0,0,0,0,0,0,0,0
DPR,0,0,0,0,0,0,0,0,0,0,0,0
DPR,0,0,0,0,0,0,0,0,0,0,0,0
H,0,0,0,0,0,0,0,0,0,0,0,0
DPR,0,0,0,0,0,0,0,0,0,0,0,0
POL,0,0,0,0,0,0,0,0,0,0,0,0
HPR,0,0,0,0,0,0,0,0,0,0,0,0
DOL,0,0,0,0,0,0,0,0,0,0,0,0
DPR,0,0,0,0,0,0,0,0,0,0,0,0
DPR,0,0,0,0,0,0,0,0,0,0,0,0
HPR,0,0,0,0,0,0,0,0,0,0,0,0

Again in my letter in November a Dragon User the ad of line should be 000, not 001. Dupes of the program need recovery!

John Hewitt
Crest Soft
25 Manswood Court
Church Moor
Huddersfield
S17 8PQ

Well, you can blame most things on printing, but that line wasn't on a job as far as we can tell, so unless the printer added it back, we don't require it.

News desk

Fewer Microdeals

MICRODEAL, at it the biggest dealer in Dragon software, are planning to prune their list of Dragon games to combat rising duplication costs.

them for an unwise steady long life before we can duplicate a batch, especially early. Our list will be smaller but we are still releasing new titles, such as



This will still leave around forty of Microdeal's most popular games available directly from the company while we get unbalanced orders we have made ourselves to make older stock available from another source.

Says John Sykes: We are finding that demand for the older games is waning after three years, sales is down and less capital we will either have to turn orders down or hold

Stone Raider II which is out now and Air Mail coming shortly, another will be going to the \$500 (Shes in March).

Someone has shown us interest in taking over our older stock but nothing has been concluded yet. A recent Microdeal purchase is Nightwood which has proved the most popular Dragon game for some months.

Bernd Knechtel steps forward

I happened the reviewer of DOS in the December issue of Dragon User but I do not want to disappear if getting too dangerous I want to take a step forward.

But first let me correct two mistakes.

At the price was £7 including g.p. to cover the editor's fee. Please add £2 for p.g. except when ordering only DOS 1.

In the sentence in the first chapter of the instructions about copying problems I must have written it badly. What I meant was that if you had written it in DOS for some time and then copied it for example your copy of coffee on to the disc, in that case you should send £2 for a replacement disc. It goes without saying I think that if you get a damaged disc it may be replaced without any charge.

Now the step by step.

Because DOS has not been very successful I have decided that from now on:

a) Any Dragon group or individual get for £3 the 1 disc and two master discs of DOS 1 (I want 10 to produce copies for themselves)

b) For £5 anyone can get four discs, being five DOS discs and two discs with all the DOS source code (15 and 14) in Disk II format. This is a one-time offer for a machine code programmer.

c) The disc versions of Logo, Adventure and Egg-Checker and Court Golf are supplied with all the source code files in Disk II format, only for developers. All cassette games that I have put out of the source code.

d) The programs in DOS are all £5, which is a reduction of up to 50%.

e) So everyone who bought

one of the programs mentioned included either 10 copies or have one of the others free at charge. I have their address on record and they should write and say which one they want.

f) Postage is free into £10.

g) I have two copies (about 100 sheets of paper) of the Dragon DOS source code listing (with tabulation) commented with an address to the writers, any of them the two big groups which buy the £2 mentioned in e).

Sincerely yours
Bernd Knechtel
11000 Wilshire Blvd
5000 Room 111
West Glendale

We reproduce this letter from Bernd Knechtel with many apologies for any embarrassment caused by the misunderstanding over the returns policy, and hope interested parties will take advantage of his special offers.

Sourcemaker update

The latest release of Sourcemaker (User Guide dated 11 September 1988) was superceded by a new version dated 1 December 1988. The new version corrects errors in the original and includes an optional END ADDRESS for disassembly (the only address mentioned in Dragon User's issue in the November

edition). Purchasers of the September version who have not yet received a replacement copy should return the original Sourcemaker cassette with their name and address to: Pantheonware Ltd, 21 Wycombe Lane, Woodburn Green, High Wycombe, Bucks HP12 4SD for their updated version.

6809 in March

JENNY Pope will be working for Microdeal as a new working independently and she will be presenting the first independent 6809 Show at the Royal Horticultural Halls in Westminster London on Saturday 20th March. Details should be appearing in a special anniversary mail elsewhere in this issue. Information is also being sent out on Microdeal's mailing list as before.

Scott of DOS Plus

Readers have been calling to find out where and how they can purchase Dragon DOS Plus £2 which always went in the February edition of Dragon User.

Copies (now up to volume 2) can be ordered from Phil Scott at 4 Badgerswood Drive, Freely, Camberley, Surrey GU15 2JF and the ROMs are £25 payable to P. G. Scott.

New show at Ossett

JOHN and Helen Fenn of John Fenn Computers Software are holding the next Dragon Cam show — held at Ossett. They met W. Robinson on Saturday 18th April. The show will run from 10am to 3pm, and be extremely free for all. It is for adults and 50p for children.

The show will include Dragon releases, and domain 484 one by name. Gary Hain

We would like to hear from anyone who has an interesting idea or application for the Dragon, and would like to do a demonstration on the day. Contact JFC Software on 0400 330000. Don't worry if you can't get through first time — there are a limited number of slots and a part of a day. Please telephone. Keep trying.

Three quick ones

QUICKDEAR Software have announced three new games of the moment known only as Super Kid, Metal on Metal and Snake & Soccer.

We have the most detail on Super Kid — a new Wayne

Smithson game with four channel music by Chris Jolly and colour graphics by Chris Brown.

The priced retail price date is April 1987 and we have no price details yet (yet).

Longer life from Broomsoft

MICHAEL Edwards of Broomsoft has announced a new software. The Improved Broom. The aim of the game is to defeat a demon named Michael. He is looking for the problem which has baffled mankind since Future Shock (back off) was first discovered? Preferring the sum of £1.00 to Broomsoft at 30 Broadmill, Welwyn Garden City, Herts. HLT 997 will reveal all that he knows.

Information about Broomsoft is duplicated throughout Dragon Magazine, can also be obtained from the above address for the price of a stamp. All the usual — games review, charts, news posts — in 12 issues a year, 800 pages. Our sample has an A4 sheet

with front and back cover stapled at one corner with a single fast removable print.

NDUG

The latest edition of Dragon Update has just rolled up and chairman Paul Gracie is teamed up with work partners more help with a starring line item — sounds like he has the problem? It should give Dragon User a thoughtful write up. He is aware of the value of keeping old things new in a specialist subject and understands our problems in getting new information and assistance now that there are fewer users. There is a couple of children reviews lots of general news and information and some notes and articles by Paul.

Contact the National Dragon Users Group via Paul Gracie, 8 Mareson Road, Welwyn Garden City, Herts. SG13 7NF.

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All Super-Smooth Dragon POWER SUPPLY units carry a 2-year guarantee plus 24-hour service security. Built to last! Broom's leading manufacturer of replacement power systems transforms your Dragon's old unit with a fast, custom, fully-welded replacement KEYBOARD Supply (19.95).

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BOOKS Including Inside The Dragon £19.95 (The Society £19.95). Plus Dragon User Dragon Monthly and Dragonizer Tech Book numbers.

LEADS Atari £15.00, cassette £18.00, printer £11.95.

PRINTERS from old to 80 pages P40 (interfaced) at £19.95, for the fast microcomputer full-feature Powersoft KOD POWER — in fact we can't tell you pay more to lose?

All prices include UK post and packing.

This year's small sample of our stock will show 100 Dragon lines. We probably have the world's largest range of DRAGON Dragon accessories — data cassettes carrying saves. There's more than 100 light pens, 1000s etc. etc. etc. Whatever you need, please probe — if it's not listed, we should have one somewhere!

PLASKOFT DRAGON SUPPLY CENTRE, 48 QUEEN STREET, BALDERTON, NEWARK, NOTS, NG24 2ND.

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OS-9 Blues

David Aothery demonstrates how to get the most out of OS-9 Stylograph

NOW that OS-9 has been adopted as the base of the European Council on Standards microcomputer system and by Sony/Philips for its language system, its future seems assured. In addition, Sandy Colour Computer's 3 runs OS-9 level 2, and HC Anderson of Denmark, whose steady attention to OS-9 sales is especially for the Dragon, also checks most of the available third-party software around. If you've taken the plunge and bought the spinning system, and you are to do so in the future, the following notes should be of help. Some of the information has appeared before, and I rely partly on information gathered from others. But it will be useful to have it all in one place.

The very fact that OS-9 is such a versatile system means that it can be used in a wide range of ways, and what might seem obvious to the casual user is not so clear to the researcher. However, a number of useful alternatives and standards of software for Stylograph have been developed in other computers. I will concentrate mainly on the word processor Stylograph, since it is the application of the system, and will be the program used by most casual users. However, to cater for letters in Dragon Star and elsewhere, it seems to solve most problems. Some of the advice given here applies to other word processors.

Despite the problems, Stylograph is an incredibly useful and flexible word processor and one of the strengths of OS-9 is that it's not restricted. Stylo can produce not only documents and mail sheets (with spelling checked by a 40000 word dictionary) but is equally at home writing the source code for programs in C, Pascal, assembly language or even Basic.

Execution end date directories

One of the most useful features of OS-9 and the most confusing to the beginner is the existence of three file name directories (usually lowercase). Providing you set these up correctly before accessing your disk it is not necessary to give a full pathname when you give commands. The first directory is automatically set to the CMOS directory of the system disk when you install SCOT up, but when this is changed for the Stylo disk you must use

the following:

```
before Stylo can be accessed. If you have only one disc drive it is:
```

```
cd d1:0
```

will show your letter files on the same disc otherwise place a blank formatted disc in drive 1 and type:

```
and it:
```

Make sure the first command in OS-9 refers to the execution directory and the second to a blank formatted disk. The first will avoid you doing the second in the future. For example:

```
cd d1:0
```

1. delete the file command in CMOS and delete it in d1:

Note that a command cannot be executed unless the command is in the execution directory. It is no use trying to find what is on a disc by typing DIR d1:0 unless DIR is in d1:0. To see the disc do: This way the Stylo disc duplicate allows files from the system disc — if these are removed or Stylo is installed on another disc only you have any evidence from the only way to find it on the disc is to LOAD DIR from your system disc into memory first. If you forget this then you will get a no access permission error message which probably leads you wrongly to suspect the file attributes need changing — very unhelpful. Note also that Stylo will not load unless it is the current directory. If you are in a directory it will not work and some features of Stylo will not work unless in d1:0. In drive 0 and REMOVE and DELETE are on the same disc as the CMOS directory. Remember that under most systems the normal Dragon OS commands must be either on disc or loaded if necessary by you.

Header file

I always have a Header file on my disk disc (produced by Stylo) which contains my address and telephone number together with the codes for setting up my printer. Suppose the code to create a new program or response character is 27. Below is a sample:

```
cp:
d07:0
and all it'll be well
Another cp — include
and:
```

and place DATE in the correct position on your header. Now when you call Stylo use the command:

```
STYLO + 104 Header Letter
```

This will set your Header along with Stylo and after you have written the rest of your letter will automatically save it with the file name of letter. The CMU will reserve as much space as possible for your text. Instead of putting the letter direct into Stylo you return to OS-9 and use

MM letter:lp

the correct date will automatically be inserted in the letter whenever you decide to print it.

The dreaded Linefeed Syndrome

The SC4000 question which is always being asked is: How do I stop Stylograph from inserting a linefeed into my printer? At the end of each line of text a carriage returns — CR — which is a carriage return and a linefeed, which is a linefeed. Unfortunately, not all matrix and modern dot-matrix printers give an automatic linefeed whenever they receive the code for a carriage return (CR). Hence the double linefeed! Many users have been suggested — a special control in another part of the file. The correct command is use the program controlling table — some of which work. Special assembly language files have been sent out to remove the linefeed codes but these are likely to vary. None can be inserted. The real aim is to change one byte of 0x0a to 0x0d. Specialising going to give code in hex characters during the article. I will explain the method during the article. All the changes are shown together in table 2. The instructions are produced by OS-9 Basic Macro language taken from the same programs as Stylo, so changing the changes are shown for free. This code is complete and does not affect the program in any other way.

Special printer characters

Another problem occasionally faced is how do I use special characters such as the 1 sign when my printer needs it. There is an extended code about 100. And here of Stylo's way to work to make bit 7 of all codes set in the printer. This is to avoid graphics characters being printed by mistake and sub-code 107 from all codes above this value. However, it can be a bit of a pain in construction, a lot of a pain) and the missing can be removed by replacing 0FF by 0FF in two places in each program.

Special printer features

Stylo has special control codes to allow underlines etc. to be used. These are intended for business type dot-matrix and work by backspacing and double printing. If you have a dot matrix printer you may be lucky. Using the Stylo commands you type a P2 type printer by Sandy DMP will produce perfectly on underline, subcode and superscripts when in word processing mode. This is because 00F is set to do each letter in underline mode and 00E

That you either enclose a blank disc and return postage or include \$2 to cover this.
 * That you enclose \$3 nominal fee to cover at least some of the time involved in DW

Factory 1 House No. 105555 Cayman
 BXS 847 I would strongly recommend anyone using OS-9 to join the OS-9 User Group which distributes educational disc-

items and groups its own needs. The address: USARS/Venue, Rosebery Court, Llandudno, Gwynedd LL30 1TF
 OS-9 RULES'OK

Table 1 - Linefeed and screen width modifications

Offset	Normal value	Change to	Comments
SYSTEM			
SP52	0A	00	Eliminates linefeed
4FAG	7F	FF	Allows control codes above 127
5A00	7F	FF	Needed as well as above change
14E3	31	4E	Gives 66 column width
RAM/ROM			
1020	0A	00	Eliminates linefeed
10E0	7F	FF	Allows print characters over 127
1E24	7F	FF	Needed as well as above
DYNALOC			
The changes shown must be made to DYNALOC.TRM not Dynaloc itself since DYNALOC.TRM cannot be loaded as a memory module a disc zap program will be needed. Do not verify after changing it.			
0180	10	10	Screen depth
0000	00	00	Screen width

RAM

Read file RAM.TRM into Stylo

Alter the first two numbers to the new screen depth and width respectively, e.g. 10 followed by 66 for a 24x66 screen (remember numbers are hex)
 Save new file as RAM.TRM after deleting old version.

Table 2 - Hex codes sent by Stylo to P&D printer

Underline mode. 0F before each character, 0E at end.
Overline mode. 0E before each character, 0E at end
Superscript. 10,1E,0E before text, 10,1C,10,1E,0E in between each,10,1C,0E at end
Subscript. 10,1C,0E before text, 10,1E,10,1C,0E in between each, and 0E at end
Spaciface. 0E before each character.
Proportional space set. 10,1E,0E before text, 10,10,0E at end of prop spaced text.

Table 3 - Style control key modifications

Offset	Normal value	Suggested value	Function	
* Screen mode controls				
0403	'J'	49	UP ARROW 0C	cursor up
0404	'L'	4C	RIGHT ARW 0D	cursor right
0405	'I'	2C	DOWN ARW 0A	cursor down
0406	'O'	4A	LEFT ARW 0B	cursor left
0407	'U'	55	CNTL UP ARW 13	Scroll up
0408	'M'	4D	CNTL DN ARW 12	Scroll down
0409	'F'	4E	Leave as before	Find
040A	'R'	52	Leave	Replace
040B	'I'	3B	Leave	Insert
040C	'W'	57	Leave	Withdraw
040D	'Z'	5A	Leave	Zip
040E	'S'	53	Leave	Save
040F	'Z'	2F	Leave	Supervisor
0410	'D'	44	Leave	Duplicate
0411	'O'	4F	SHFT UP ARW 1C	Screen up
0412	'O'	2C	SHFT DN ARW 1A	Screen down
0413	'K'	4B	Leave	Cursor left/right
0414	'P'	5B	Leave	Page number
0415	'I'	7D	Leave	Insert Marker
0416	CONTROL D	04	CNTL C 03	Delete character
0417				
0418	'P'	5F	CNT LFT ARW 18	Scroll left
0419	'R'	5D	CNT RT ARW 11	Scroll right
041A	'I'	31	Leave	Overwrite one char
041B	'I'	49	'I'	Insert one character
* Print mode controls				
041C	CONTROL U	15	CNTL B 1D	Underline
041D	CONT D	6F	Leave	Overline
041E	CONT B	0C	Leave	Boldface
041F	CONT I	09	CNTL # 08	Superscript
0420	CONT K	6B	Leave	Subscript
0421	CONT Z	1A	CNTL U 15	Under
0422	SPACE	2B	Leave	Space Character
0423	LEFT ARROW	0B	Leave	Backspace
0424	SHFT L ARW	1A	CNTL C 03	Cancel LFB
0425	CONT D	64	CNTL C 03	Delete character
0426	CONT W	17	Leave	Delete word
0427	CONT F	65	Leave	Format display
0428	CONT M	0E	Leave	Name Error
0429	CONT V	1C	CNTL M 0D	View mode
042A	CONT P	1D	CNTL V 16	Page status
042B	CONT C	07	Leave	Ghost hyphen
042C	CONT K	12	SHFT RT ARW 19	Set tab
042D	CONT Y	19	SHFT LFT AR 18	Clear tab
042E	CONT G	1F	Leave	Caps Lock
042F	CONT A	01	Leave	Help
0430	CONT DEL AR	10	Leave	Exit insert mode
0431	CONT T	14	Leave	Tab

In the firing line

Program: *Phoenix*
Supplier: *Dragonsoft*
Price: £995

DAY ONE: I can hardly believe it but just two days ago I was making my way in a familiar neighbourhood in Great Street and now I find myself in a vast zone again several hundred thousand leagues, planning to shoot a plane and fly it out. They've explained it all to me. Colonel Bill Bricker Phoenix has told me it's easy.

Stage one is the approach stage (indeed that approach and stage three—so simplifying the jargonised DR I can help but worry something seems to be wrong).

DAY TWO: something's wrong to be very wrong. My gun appears to have three bullets in every four bullets. I mean I keep shooting at the men but soon when I hit them, they don't die. Colonel Bricker tells me to 'stop being such a

stubby party girl. Phoenix just defines the great unknowns. The others are warning. But still I feel uneasy about my choices of weapons.

DAY THREE: something is wrong. I've decided to set up a line only to get shot from behind as my gun seems to go sideways. I'm not out on to turn back. Sorry god I can see Jerry Gating now. I've raised Colonel Bricker but he's asleep. He has his caught another one and is asleep in my manual laughter. Well it looks like I've had it. Tell Lucas I love her. Well's well.

These were the last coherent words of Private Gating. From the routine based standard pages of his diary the following words were gleaned. Great graphics, great sound completely bug ridden for hard to enter.

Jason Orsman

When we reviewed it, we felt that Jason Orsman's review was particularly contentious and that it was only right that Dragonsoft should have a chance to reply to it on the spot. Steve Holstman of Dragonsoft thought so too and he's replied below. We'll only add that in on the game itself: good, powerful, good and well likely to play, have a

Dear Editor

Thank you for pressing on your reviewer's comments about our game *Phoenix* to me.

I feel that the review is very inaccurate in several areas you misinterpreted it. I must insist that you print the letter *Horrible* you review.

I will begin by bringing your attention to Mr Orsman's inaccuracies.

a) My gun appears to have three bullets in every four bullets.

This is incorrect. Although I may appear that the bullets have hit the men, they may not be the case as the men can move faster than the bullets and thus avoid them. There is a trick to using this gun — as

games player copies with a game of this type depends on how he is allowed to game. We spent a long time pondering which strategy would involve an essay on game playing which is out of place here, but we would like to have the opinions of other readers who have loved or hated the game.

— Editor

with all weapons — which Mr Orsman seems not to have acquired!

b) I've just tried to run past a lion only to get stuck there and no way to pass it or to go straight across opposite can't see.

It is possible to climb over virtually anything on the screen by moving the joystick backwards and forwards. There is a safe route through the game which has to be found by trial and error.

c) Mr Orsman's gaming computer is completely bug ridden.

This is a seriously misleading statement as anyone with a knowledge of programming will know that many hours of work

go into producing a bug free program with this as Mr Orsman's comment is a criticism of success with bugs in the program.

I do also object to the unrealistic manner in which Mr Orsman has put my name into mine.

I will be most than happy to demonstrate the program again to clear up any problems.

The game was designed to be a challenge to the limited games player not to be completed within the first few

in order to pay themselves a very favourable response to the game Mr Cass Professor of the NCUO agrees that the game is indeed a state-of-the-art. For Force is an excellent piece of programming and a good game. Surely this must only come long.

Dragonsoft Software always welcome your comments but it is by the content that we improve our future products.

David Rochester
Dragonsoft Software

Depêche modem

Program: *Depêche*
Supplier: H C Andersen Computer and Engineering, 365, 06-2778 Keating
Price: £89.00 plus p&p

H.C. ANDERSEN Computer AG of Denmark has recently announced the introduction of the Depêche implementation of Microsoft's OS-9 Level 1 (see DU Jan 87).

They are supporting the wide number of other existing quality software packages for the new OS-9-based such as Emerald as a communications program running under OS-9.

It is completely menu-driven and allows the computer to send and receive files or act as a dumb terminal.

Options are selected from the menus using the cursor, implemented in a striking pale Stylographic.

The main menu offers the following options:

Terminal — selecting this enters the terminal emulation program that allows you to log onto other computers (as a modem) and use the Dragon of the keyboard and screen. Control is returned to the program by pressing Clear or

Receive — This allows files to be received from another computer in one of three formats: Binary ASCII text using the standard XMODEM protocol, or text using the CRN protocol or binary using the CRN protocol.

Send — This option allows data files to be sent to another computer (readers using one of the three protocols mentioned above). A visual display of the file being

transmitted is given for text files.

The next three options allow the data capture buffer to be deleted (cleared), saved to disk or restored if it is currently active.

The most important option is Modify Communications Protocol. This allows just about every variable in serial data communications to be customised. Standard releases supported from 50 to 2400 words/length from 5 to 8 bits. The number of stop bits is alterable as is the type of parity (if any) that is to be used.

Full or Half Duplex is supported and the XMODEM protocol may be changed as may the status of the local CLEAR or by default. The baudlength may change from the default 50 for these using Dragon Plus etc.

Finally there is a usual option to enter the OS-9 Shell allowing you to execute OS-9 commands and CLEAR (BRIAR) is entered which returns you to the calling program (Emerald).

Emerald carries access as a professionally finished program which contains manual (but not all) of the features found in many of the associated communications packages (it should really contain many more but is editing option). DR is not necessary for the type of program but it is a requirement before putting out your cash.



Requires Dragon 04 with disk drive and OS-9 system

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FLEXible printing

Malcolm Cowan takes the hard work out of FLEX printer commands.

USERS of FLEX, especially those using a word processor under FLEX, will know the frustration of having to put in extra lines of control characters at the start of each document to be printed, so at least the printer is set to the right mode. Sometimes you can get away with it by setting the dip switches at the back of the printer — but all too often the print mode you want is not one which can be selected by altering the dip switches.

The EPS utility is a simple easily modified program you can use to set up any Epson printer for any other printer for that matter if you receive the print command sections as to whatever combination of modes you desire.

EPS is written in Assembler, but you don't need to know any 8080 Assembler to copy it, compile it, and use it. If you want to play around and modify the print options given then that's easy enough as well, the listing is annotated well enough for most changes to be made without any reference to the Assembler section of the FLEX manual.

The setup-starting TEXT appears the startup message, the next section starting with the 501 hex gives the mode commands

which are always obeyed, followed by the different lines of print commands, one for each option. Finally the section starting 1001 connects up the printer addressed lines with the option letters.

Setting up the program

To set the source up —

1. Copy the Assembler definitions into ASMDEFSTXT

Copy the program listing into EPSTXT

(If you already have an ASMDEFSTXT file then make sure it includes the lines listed.)

2. Compile the program

ASM80.EPS

This will put the compiled source into a file called PS.BIN, and (optionally) put a listing of the compiled program out to the screen with the magic message 'D 0494040' at the end.

3. Copy the file EPS.BIN to your System Device EPS:Ctrl0, so that it will be recognised by the Operating System.

Using the Program EPS

To use the program type in
P:EPS

The 'P' is a force output to the printer. EPS will then display the text options, thus 'Type Condensed, Double-strike, Emphasized, Hash, Italic, eleven inch, No page stop, Pica, Single sheet, 3 lines/in'.

Select one or more options, eg 'NO' would give No Page Stop, 3 lines/in, and basic mode printing, then press Enter. The printer will reset its primed mode you are ready to go.

As defined here the program returns the Utility Command area, and so can be used from the SPS word processor by Com-puwrite, for those of you with that product. (By the way if you're reading this then you're for the new version of SPS, it's a great improvement.)

If anyone's feeling enthusiastic, it should be possible to combine the 'P' Command with the EPS command with a little bit of deassembling and reworking. I chose not to do this for two reasons — firstly it would have to depend on a particular implementation on FLEX, and secondly it's too soon after 50000 anyone out there will regret giving it a try if it is as challenging for you.

Listing of FLEX utility EPS

- * Program to set up an Epson printer; Malcolm Cowan 09/10/86
- * Copyright Cowan Software Ltd 1986
- * This program may be used free of charge by private
- * individuals for domestic purposes, and may be included
- * in libraries of Public Domain Software for that purpose

```
LIB 49966EFS
ORG 0C100
LDRM 01001
M0 FCB 1

* specify the message to be displayed, terminated by 004
TEXT FCB 'Type Condensed, Double-strike, Emphasized, Hash, Italic'
FDB 0000 Newline
FCB ' eleven inch, No page stop, Pica, Single sheet, 3 lines/in'
FCB 004

* specify the printer commands to reset the printer to a standard start state
M0 FCB 37, 0, 37, 0, 37, 0, 13, 0FF Reset, 3 Lines, Skip over Page

* now specify the printer commands to set the various printer options
* for details see your Epson manual; each line is terminated by 0FF
M0 FCB 37, 3, 72, 0FF Set 3 Lines/Inch
M0 FCB 37, P, 13, 0FF Set Condensed
M0 FCB 37, 0, 4FF Set Double Strike
M0 FCB 37, 0, 4FF Set Emphasized
M0 FCB 37, 0, 0, 4FF Set Hash
M0 FCB 37, 0, 4FF Set Italic
M0 FCB 37, 0, 0, 11, 0FF Set Eleven Inch Paper
M0 FCB 37, 0, 4FF Set No Skip over end of Page
M0 FCB 37, P, 0FF Set Pica
M0 FCB 37, 0, 4FF Set Single Sheet
```


- * this list links the lines of commands above to the input message
- * the lines come in pairs the label, then the input option letter
- * option letters may be numeric or alphabetic (upper case)
- * the list is terminated by zeros

```

LIST  FCB 00          List of Options and pointers
      FCB 1
      FCB 2C
      FCB C
      FCB 00
      FCB 0
      FCB 00
      FCB 0
      FCB 00
      FCB 0
      FCB 01
      FCB 1
      FCB 0L
      FCB 'L
      FCB 0N
      FCB 0
      FCB 0P
      FCB '0
      FCB 00
      FCB 0
      FCB 0,0,0
  
```

Assembler definitions for DPS utility

```

*
* Standard system definitions
* Malcolia Green 09/08/84
*
* I/O Equates
00007  EQU 40022      Output Switch
00000  EQU 40003      File recovery point
0000C  EQU 4000F      Low level output a char
0000F  EQU 40010      Input into line buffer
0000B  EQU 4001E      Print string
0000F  EQU 40024      Print or and if
0000C  EQU 40027      Get next Buffer Character
  
```

```

START LDA  E1
      STA  OMDUT      Set o/p through screen
      LDX  ETEXT      Print options list
      JSR  PSTRNG     Print options list
      JSR  PCBLK     c/l
      JSR  INBUF     Get input line
      CLR  OMDUT     Reset normal o/p
      LDR  000       Start with a reset

LOOP  LDA  ,X+       Get next ch to o/p to printer
      CMA  ,X+
      SED  ENDL      Jif end of output string
      JSR  BUTCH     JSR BUTCH
      BNA  LOOP

ENDL  JSR  BUTCH     Get next ch from the buffer
      CCS  ENL      Jif not alphanumeric

      CMA  ,X+
      BLS  UPPER     Jif already upper case

      BABS  0000     Force upper case

OPTION LOY  0,LIST
OPTION TST  2,P
      SED  ENL      Jif end of option list
      LDX  ,X++
      CMA  ,Y+
      SED  LOOP     Jif option recognized
      DRA  OPTION

END   CMA  0000
      LDR  0,END
      BNA  ENDL

      JSR  PCBLK     Clear printer buffer with a c/l
      END  START
  
```

Disc controller

D. Marriott brings Cumana under control with this menu utility.

I HAV^E been trying to insert a utility not covered in magazine. After a bit of thought I came up with Disc Controller to help me (strongly) take control of Cumana system. The users range from killing and catalog to sector read and sector write. The latter two are not important and can be omitted when going to bed. The program is held on a disc which is only needed to load the program at the beginning. Please note the date in line 10 which can stop programs loading with the lack of memory.

The program operates as:

- 1-Perform
- 2-kill
- 3-killn
- 4-load
- 5-catalog
- 6-backup
- 7-protect
- 8-sector r
- 9-sector w

REPROGRAM can create any type of disc (single-sided, double-sided etc) and can delete all the programs on it. All the pro-

grams if any are first displayed on the screen so that they can be checked off and the identity of the disc confirmed. There is an abort function if it is wrong which returns to the menu. It will then ask for the drive, disc sides and the number of tracks and after a wait the menu will return.

KILL will remove a program from disc providing it is not protected. First insert the disc. All the programs on it will be displayed. At the display the only thing to do is abort if you have made an error. It will ask for the title of the programme to be killed followed by BASIC#, which stands for BASIC/MAKEDIR/CODE/DIRTY/DACRUP/COPY. I will then kill the program and return to the menu.

LOAD loads and auto-runs a program. It will first catalogue the inserted disc and then ask for the title of the required program. Then it asks for the file type (that is BASIC/BASIC/TEACH/IC CODE/ DATA). If the wrong disc is inserted or an error has been made then do not type B or C.

LIST does the same as clear except it does not auto run. If an error is made then do not type B or C but end for joy and

you will enter catalogue.

CATALOG asks for a disc and then it prints out the programs on it.

BACKUP will either backup a single program or a whole disc. If restoring backed up and copy it will ask for the drive side used. If they are the same use drive 1. You will then be asked to reposition disc if one drive is used, so ensure that it is not protected on the disc to be copied from. For a single program it will ask for file title and requires an end of file character (END). Then you may use drive 10. If this must be done you will store the program on.

PROTECT will guard any programs so that they cannot be killed except by reformatting the disc. It will show what is on the disc and then ask for the program title. Then it will ask whether the program needs protection copied or not copied. If either M or F a disk will appear in the menu.

DISK SECTOR WRITE will sector a track and sector. You can type any characters or words characters etc. This is for a label on the disc. There is no position for input. First type in the program then save it onto disc using your own preferred filename.

```
10 CLEAR:GOTO 20
20 PRINT:PRINT "DISC BY A. MARriott, CONTROL BASIC"
30 PRINT:GOTO 20:GOTO 20:PRINT " "
40 PRINT:PRINT " "
50 PRINT:GOTO 20:PRINT " "
60 PRINT:GOTO 20:GOTO 20:PRINT " "
70 PRINT:PRINT " "
80 PRINT:GOTO 20:PRINT " "
90 PRINT:GOTO 20:PRINT " "
100 PRINT:PRINT " "
110 PRINT:PRINT " "
120 PRINT:GOTO 20:PRINT " "
130 PRINT:PRINT " "
140 PRINT:PRINT " "
150 PRINT:PRINT " "
160 PRINT:PRINT " "
170 PRINT:PRINT " "
180 PRINT:PRINT " "
190 PRINT:PRINT " "
200 PRINT:PRINT " "
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230 PRINT:PRINT " "
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960 PRINT:PRINT " "
970 PRINT:PRINT " "
980 PRINT:PRINT " "
990 PRINT:PRINT " "
```


Expert's Arcade Arena

Write to: The Expert's Arcade Arena
12-13 Little Newport St, London WC2N 7PP
with all your arcade tips and hints.

HELLO! and welcome to the Expert's periodic confession: Yes, the mystery's history The Expert is revealed! Below the amazing games listed on here is a list of:

NAME: The Expert

SOB: Obviously

SEX: Regularly (No pretence as for by name) — (M)

CHILDHOOD: The Expert's mother is his best aunt at both (his not her) The Expert spent his childhood in a boarding school (with great sanctions for insulting his teachers) and making use of contacts. His interest was marked by impressive street parties, algebraic logic, free music classes and British Telecom getting SEVEN numbers right in a row!

EXPERIENCE ON COMPUTERS: After several months reading The Expert designed his own computer following established trends (Apple, Apple II, IBM and his design The Herring. It had no RAM and no ROM as it was in fact a board with one of those horrible Becker keyboards. Consequently it was simple to use and sold quite well for a while. The Expert went on to design the Red Herring. This had 1024 RAM, 128K ROM, FORTH, C, Pascal and Basic as standard, and was even simpler to use, as he took the advice on how to do it and moved the keyboard. Unfortunately the made programming rather difficult.

The Red Herring sank. The Expert

bought a Dragon 32 and decided to write games.

About some three years later in a game with a continuous supply of games, he had got to write a certain program (Dr anything — OAC — R!) and he knew more than anyone else in the world about Dragon games. Being a game's expert he found that Dragon Data had gone over the drain. Attempting to recreate its progress, he tripped over a vast state space of levels and who

was chasing up Double Mart's crime gallery in L. (The Herring's best). Its name was Harry Amberg. Much has been written about this wonderful relationship in the state space. The real is history. The Expert was looking for the spot at the time. The error he had on was Mr John Galt, who always carried a stone of evidence to protect himself from confusion and confusion software reviews. The Expert's computer's job on the spot — (M)

Games roundup

So into this month's promised games roundup. What I have done is picked fifty games from the period of the games and give you an opinion. This should sort out some of the letters asking my opinion on this game and that.

If you find this column has been useful I will be glad to hear what games you've tried and why.

Every game listed means that I have enjoyed playing, and the list is intended to help those asking for better collections. Under 'Graphs' I have considered how the game looks while PAUSED — making an allowance for smoothness of reviews. All ratings are from zero to five. In 'Spots' the rating goes from zero to five in increments of one. (Occasionally a 'Please note' the overall rating does not cover

good to the usual Dragon ratings because these games are ALL FOUR DRAGONS AT LEAST in the normal way. They are all good, some of them are brilliant.

Under 'Type' I have assigned the following categories: **Shoot-along** (all right for games), **Collection** (software features from those above to show the best), **Penetration** (science fiction), **Adventure** (non-action), **Strategy** (games where thought is as important as speed), **Kung Fu** (all of it).

The **Rating** is an overall of necessarily available (but supplementary) jobs, items and characters may not have copies. Please, will say. As a rough guide to the first column are fifty games (the real twenty seven are historical).

Name	Graphics	Speed	Type	Comments	Rating
Acas the Acot	1	3	Collection	If you can get hold of one of the copies which allows you to play without the barrier of power surges, this is a really good fun game.	4
Break a Kingdom	2	2	Adventure	With the map (almost dead) this game is a touch, but try it without.	2
Carroll's Choice	3	3	Collection	The idea's a few steps to Alexia (better for comfort) but very little else. The game has some very decent screens and a very nice feel to it.	3
Circle Sketch	3	3	Penetration	This game's test for arcade game players. If you can do this one without changing cards you will among the elite few who will be remembered long after death!	5
Dragon Darts	1	5	Strategy	Excellent design makes this one work. It's very difficult to master. Traditional games to a dragon, but the words vary well thanks to the way they are done. It's not the same as playing darts in the real world, but it's almost as much fun!	3
Peppers	2	2	Collection	It's not the best of its type, or the best looking, but it's pretty damn good, and it's a high difficulty level. A really rather playable.	2
Go Job	2	3	Adventure	Ignoring the fact that an employment test is the most suitable subject for a game, this one will make anyone sit or sleep if anyone wants to do that!	3
Kung Fu — The Master	4	4	Kung Fu	This is THE BEST kung fu game available for the Dragon. Ignore the fact that only one person can play it, it's fine because the one has very good acrobatics and really does provide a challenge that becomes progressively more difficult.	5
Murderer	1	2	Adventure	This is one of the many not good versions of stories available for the Dragon.	1
Olympic	3	2	etc	This is one of the many not good versions of Track and Field available for the Dragon.	3

Name	Graphical	Sound	Type	Comments	Rating
Party Hebbis	3	3	Strategy	This really is a good idea: thinking and reacting games. I would have done about it, but it looks good and sounds good.	3
Star Sweep	4	3	Shoot-em-up	This is a game for when your friends come round and want to play a shooting game but really aren't very good. Plus, for beginners, it's not clean: I get any more difficult, so it's only a 3-star up.	3
Samurai Jones	4	4	Platformer	Based vaguely on a 16-bit platform game called Lunar Jetman, this is not very good but it's fun: it's got long, entertaining passages.	
Speed Racer	6	3	rac	This is the best driving game the Dragon will ever know to get on: today it's 3-D with a choice of four tracks and really great competitions with other people, so each track has its own high score.	5
Temper Raiser	3	3	Collection	This is a type of Ken Robinson game: it's almost complete!	4
William's Space	3	3	Collection	The closest to Jet Pac the Dragon has ever seen, with the most amazing extra bit: even so, as well as that, it wants to spend half an hour being numbers up!	3
Cutthroat golf (still about)	3	3	Strategy	A really unique titled Amateur, that actually really works: both bits of it are fun.	3
Mr. Dig	2	2	Collection	The only half-way decent version of the classic classic available for the Dragon, and this really can't be any worse!	
The Office of Poppa	3	3	rac	This is really very good, used for some obscure reason, to make it for more favoured among women than men!	5
Plumber Boy	4	4	Adventure	If you like Super Mario then you'll love the bit of 3-D graphics!	3
Cutthroat in the Cooler	3	3	Adventure	The only thing wrong with this game is that there are really not enough passages to provide sense of achievement when it's finished!	3
D'Cart	3	2	Strategy	It's a pity there aren't more versions of D'Cart about but D'Cart is the best I've seen.	3
Beast of Guit	3	3	rac	At its best, in two player competitions in a version of about a now available single player, which means it represents a considerable amount.	
Beast of Guit	4	4	Strategy	Highly unique item, that is probably one of the best forward-games for the Dragon. It's really original: it's got a lot of skill and should have been a best seller.	5
Talking Android Attack	3	3	Adventure	This is another of the not very good versions of Beasts for the Dragon. This one has the worst graphics of them all: it's just bad.	
Allygo	2	1	rac	This is another of the not very good versions of Beasts and Allygo for the Dragon. This is the one that ever might have been played by 100% due to the stupidity of somebody who's trying to play it.	2
Chameleon	4	3	Adventure	This is a game based upon one that came out for that video games machine with the video action which was called Chameleon: it's my poor friend's game — the Machine machine? I've seen it: it's not worth trying to enter the official and see the artwork that way after so-called more game and the history of the version. What is it for now? — Ed.) and it's very challenging indeed, even if it does get a bit boring after a while.	3
Grabber	4	3	Collection	This is the best version of The Afternoon on the Dragon. It's so simple — why is it so bad?	5
Paragon II	4	4	Shoot-em-up	This is an excellent version of Paragon, and once you get used to playing it without a track ball it becomes mind-bogglingly addictive.	4
Eight Ball	4	2	Strategy	Almost like a game of pool, except you don't knock anything: it's about how you pull this or that!	3
Skunk	4	2	Platformer	This is a game that you really DON'T go on playing for ever. Try it, and you'll see what I mean!	3

Winners and Losers

Every month, Gordon Lee will look at some prize programming jobs from a previous month's competition.

October's competition had a total of a total of five solutions based on a mix of the random and fixed letters of the random and fixed letters. The problem was to assign digits to the letters E, L, G, A and R such that the sum of the squares of the compressed words — ELGAR + REGAL + LARG + LAGER + GLARE — produced a six digit number in which each of the digits was a digit already in use in the generating word. Further, the value when when were multiplied formed a sequence in which no letter in any position was in common with either LARGAL or REGAL.

The rub of the problem was in allocating digits to the letters, and the majority of entries used one of two techniques. These were either by testing all values in the range 0000 to 9999 for duplication of digits, or by generating each digit separately using the FORMTEXT loop.

Listing one illustrates the general method used in the five of these methods. Note the initial value of the FORMTEXT loop at line 20. This is the smallest value that can represent ELGAR, not least for REGA as some entries thought. Remember that A will be the only letter that can be repeated by a zero as the other four letters all appear as the first letters of the programs and leading zeros are not allowed. Each element of the loop is then converted to a string variable which is then tested for duplication of any digit. This is done using the two substrings F and G. If any match is found a flag (F) is set to 1 to denote this. To speed up the execution of the test-out-of-the-loop logic are formed and readily checked against numbers found by increasing the values of F and G in their maximum limits. It is possible to eliminate the loops by jumping out of them, but this is not good practice. We can get away with one for the Dragon, but on many other cases you would not be so lucky!

As a method, however, testing one or many times slower in execution than the alternative as demonstrated in Listings two and three here, each digit is generated separately and amongst these competitors who show this method, it is that one entry in this overly divided solution that the two versions showed the difference and the NEXT part of the loops. Listing two is the simplest in respect of programming as all of the tests are on a single line. Unfortunately the does down the sorting time considerably as every unnecessary test is carried out. For example E, L and R are similar therefore possible can start by testing all 500 permutations of the remaining three letters. With the next part of the loops occurring on a single line it is not possible to sort to the nearest letter (on the part of the computer). Listing 3 illustrates the problem by testing each value as it is generated, keeping the test loops completely separate.

The reason that I have included these listings is to illustrate the way in which the winning method requires often depends on the method used, and remember that these only represent one section of the total

program required to solve the problem. The 500 permutations logic adopted can often be speeded up by running test loops such as these, and time spent in doing this is time well spent. It would not be necessary to run each of these loops to completion. Just stop the program after a predetermined time, and test the state of the variables at that moment, and then compare the results. Note that these listings are just the top and tail of the program — it is still necessary to perform a lot of checks.

The first of these would be to substitute digits for letters so as to evaluate the final sum of the alphabetic. Keith David at Crawley came up with a very elegant method which did not require the whole operation to be a single program line.

```
SLM = (110010)+(220011)+(330100)+  
      (210011)+(201100)
```

Each of the values E, L, G, A, and R is multiplied by digits which represent the number of times that the value occurs in any given position in the alphabetic. G for example appears 10 times. This indicates that the G does not occur in the unit or tens position, once in the hundreds place, three times in the thousands and so on.

Once the totals are calculated (by whatever method) it is then necessary to test each

digit to ensure that it is one of the values already assigned to the generating words.

The final stage was to compare all possible values that have survived the tests so far with the sequences LARGAL and REGAL. I am later to thank by Alan Tuckwood (Stapleford) who completed his entry being posted 5th January. A tip off to queries this issue led to be covered off by David (Port Talbot) Mr T, said in a program that runs for a rate into I generally prefer to see some evidence of digital clever than have a basic screen. Not only does the program run fast but the computer used (which is some of the best) is a good one. I am sure that the program is good, but in the case in question, the list of possible solutions can also be used to test that the program is working correctly, one of two of four values are checked against the original alphabetic.

Finally, one competitor, Denis O'Malley used a list of five randomly generated programs instead of the expected FORMTEXT loop. This he reports produced the required result after a running time of 20 minutes. While not recommending this method of approach it seems to have worked and this I was sure. I should imagine by luck their judgement. We will be having closer look at the use of random numbers in solving problems in next month's Winners & Losers.

Listing 1

```
10 TIMEP=0  
20 FOR N=1 TO 304 TO 30750  
  30 NEXT P=1 TO N: N=HIDE*(N,2)  
  40 F=0  
  50 FOR F=1 TO 4: FOR G=1+1 TO 5  
    60 IF MID$(N,F,1) > MID$(N,G,1) THEN F=L+1  
      F=4: G=5  
  70 NEXT G  
  80 NEXT P  
90 PRINT TIMEP
```

Listing 2

```
10 TIMEP=0  
20 FOR E=1 TO 9  
30 FOR L=1 TO 4  
40 FOR G=1 TO 9  
50 FOR A=0 TO 9  
60 FOR R=1 TO 4  
70 IF E=L OR E=R OR E=A  
80 IF E=P OR E=L OR E=R  
90 IF L=M OR L=P OR M=P  
100 IF A=P OR A=R OR A=L  
110 NEXT P  
120 NEXT A  
130 NEXT G  
140 NEXT L  
150 NEXT E  
200 PRINT TIMEP
```

Listing 3

```
10 TIMEP=0  
20 FOR E=1 TO 4  
  30 FOR L=1 TO 4  
    40 IF E=L THEN L=0  
    50 FOR G=1 TO 9  
      60 IF E=G OR L=G  
      THEN L=0  
    70 FOR A=1 TO 9  
      80 IF E=A OR L=A OR  
      G=A THEN L=0  
    90 FOR R=1 TO 5  
      100 IF E=R OR L=R OR  
      G=R OR A=R THEN L=0  
  110 NEXT P  
  120 NEXT A  
  130 NEXT G  
  140 NEXT L  
  150 NEXT E  
200 PRINT TIMEP
```

Hooks and Ns

Extra facilities can be hooked onto Dragon BASIC. Philip G. Scott does the hanging

DRAGON Basic has a set of 28 Hooks (or Expansion Modules — see Dragon User History 1985, February) which enable you to hang extra facilities onto the Basic provided. Many of these are used by the various DOS programs (DRA555/DRA000/SUPERDOS, DRA010, etc.) and in this column, I'll describe the extra facilities in the standard way without interfering with any other programs already using the hooks.

As an example, a facility is described to give a RESTORE facility to return to a line number together with a RETURN facility to reposition the line in the RESTORE command something that has been requested into and again in a Dragon User will have a satisfactory answer. The example has been simplified by making one assumption: that this is the only action which affects a RETURN/RESTORE combination.

Table one gives a recap of the hooks used in the BASIC routines that call them. This is not intentionally wanted to be Brian Clegg article but any interpretation of its usage.

To use a hook correctly, a number of things have to be done to ensure your extra feature works correctly and does not remove another feature already using the hook.

Firstly of course, your hook routine has to be called through the hook! For most of the hooks, this routine should be prepared in the same address codes and any other registers used in case they are also needed to be perturbed by any other tool using the hook (or indeed the Basic routine which called the hook). This is done in the RETURN facility of Figure one but not in the RESTORE as the state of the registers before a call to the hook is unknown.

Secondly any routine added in through a hook should act through the hook vector which existed before the routine itself was installed: it'll be routine has not been allocated. The example that way the facilities in use are not lost.

Finally the vector to the new routine should be entered in the hook. Ideally this is done by an initialisation routine that attempts to prevent itself being called twice if this should happen the hook routine will be a no-op!

The example program of Figure one is a modified version of Brian Clegg's fully portable independent and gives a facility to return to a line number (or the program start if no line number given). The example is at three parts: an installation routine (SETUP), the RESTORE extension (RESTO) and the extension to RETURN (RETURN).

SETUP starts by copying the vectors for the hooks into used into the appropriate memory routines, then writes a jump to each routine in the hooks. Finally, the address of the NEW BASIC routine is written as the BASIC address, to prevent an inadvertent

second installation before returning to BASIC.

After SETUP is stopped, RESTO takes precedence over the built-in RESTORE command by detecting the token value (RESTO) as the first character of BASIC statement. If RESTORE is found, the default BASIC pointer (the address of the start of the program in BASIC) is loaded into the Z register and a test made for a line number through GETCHA. If the presence of a line number is detected, ADDRESS is set to convert the ASCII string of digits to binary and PMSLR is called to do the job. If the line is not found, the Clog is set on, HAL ERROR message is output otherwise the BASIC pointer is set to point at the end of the preceding line. Note that the line specified need not exist (unless a BASIC statement as the last DATA statement occurring after the specified line will be used by the next READ).

The final part of the program does the NOWARNING of line numbers in RESTORE commands. The hook used for this is also called here (the other places (Function = GETPUT and CLS) so that the registers must be preserved). As only X and Z are affected, these are pushed onto the stack. The return address is then used to set RETURN to the calling routine and,

then, X and Z are pulled and the original hook vector used to move on. If the calling routine is RETURN and the token value is RESTO this is changed to RETURN (the token for THEN before returning to RETURN to reassemble the line number following THEN) for really good programming practice but very effective in this situation.

You should now have an idea of how to use the BASIC hooks effectively to bring on extra goodies and a useful RESTORE to line number facility. I hope it should be used in the system. Figure two is a line dump in standard format.

address:0 data bytes = 00000000

After loading the 100 bytes, the program should be saved by:

SAVE LA,LA:100,LA

where LA is the address at which it was loaded (BASIC in the default ROM) and the position independent so can be put anywhere! Note that only 100 bytes are shown in the dump, as the edge of the remaining bytes is by SETUP. Figure three is a simple test program built on the last by replacing RETURN if desired.

Table 1 — Hooks

Hook Address	Called From	Function
0158	0020	Open drive or file
0161	0100	Check I/O device number
0164	0100	Return device parameters
0167	0164	Character output
016A	0164	Character input
016D	0123	Check device is open for input
0170	0120	Check device is open for output
0173	016C	Close all devices and files
0176	0161	Close a single device or file
0179	0400	about to deal with first character of statement
017C	0170	Does file line number
017F	0170	Full for BASIC or special keys
0182	016C	Read a line of input
0185	017D	Finish loading ASCII program
0188	0100	End of file (EOF) function
018B	0164	Evaluate an expression
018E	0164	User error trap
0191	0147	System error trap
0194	016C	END statement
0197	0424	CLS statement
	0200	String copy check
019B	0400	Error trap statement
019E	0107	LET string copy check
01A0	010F	Function assignment validation
	010E	BASIC statement, token processing
	0107	PUT/GET statement
	010F	CLS statement
01A3	0107	Compare BASIC line for storage
01A6	010C	Expand BASIC line for listing

Figure 1 — Assembler Listing

```

0C1C
0C1C
0C1C
0C1C
0C1C      1400
0C1C      0C1C
0C1C
0C1C      849A      ACTION EQU 849A
0C1C      8413      DATPOS EQU 8413
0C1C      8885      ERAPC  EQU 8885
0C1C      8144      ERAPRT EQU 8144
0C1C      099D      ERRCAD EQU 99D
0C1C      81FF      FNDLIN EQU 81FF
0C1C      005F      GETCHA EQU 5F
0C1C      0090      ERSTO  EQU 90
0C1C      008F      KTRM   EQU 8F
0C1C      9885      REMEM  EQU 9885
0C1C      0029      SACHLN EQU 29
0C1C      0019      SFRMDC EQU 19
0C1C      000E      FLERR  EQU 0E
0C1C
0C1C
0C1C
0C1C
0C1C
0C1C      * Copy back vectors for shell
0C1C
0C1C      86 0179      SETUP  LDR  0179
0C1C      47 8C 4A      SLL  ERST1,PCB
0C1C      FE 017A      LDR  017A
0C1C      8F 8C 43      STU  ERST1-1,PCB
0C1C      86 01A0      LDR  01A0
0C1C      47 8C 54      STA  ERRC2,PCB
0C1C      FE 01A1      LDR  01A1
0C1C      8F 8C 4F      STS  ERRC2-1,PCB
0C1C
0C1C
0C1C
0C1C      * Setup new back vectors
0C1C
0C1C      33 8C 38      LDR  8C38,PCB
0C1C      FF 08A3      STS  08A3
0C1C      33 8C 31      LDR  ERST0,PCB
0C1C      FF 017A      STS  017A
0C1C      84 7E      LDR  847E
0C1C      87 018D      STA  018D
0C1C      87 0179      STA  0179
0C1C      0E 888D      LDR  888D,PCB
0C1C      0E 7E      STS  0E7E
0C1C
0C1C
0C1C
0C1C
0C1C      * RESTORE
0C1C
0C1C      81 90      RSTO  CMA  #ERSTO      Test for RESTORE token
0C1C      28 1A      AND  ERST1
0C1C      32 63      LEAS  2,8
0C1C      9C 19      LDR  STRMAG      Load default pointer
0C1C      90 9F      JLA  GETCHA
0C1C      27 08      BEQ  REMEM      No line number
0C1C      8D 849A      JLA  ACTION      Get line number
0C1C      2D 81FF      JSR  FNDLIN      Find required line
0C1C      25 05      BCS  BRFL      Jump if line not found

```

```

0062 30 1F      ROMM  LEAX  -1,S
0064 9F 33      STX   RAXP08      Set DATA pointer
0066 39         RTS
0067 05 08      BRUL  L08  R0L088
0068 7E 8344    JMP   ENDOPT      Output TUL ENDO8
006C         REST1  R08  3
006E         *****
006F         * RESUME:
006F         *****
006F 34 11      R088  P088  X,CC
0071 AE 63      LDX  3,S
0073 8C 9888    ORPX  R088M      From R088M?
0074 3E 08      R08  R08M1      Jump if not
0076 81 90      ORPA  R088TO    RESTORE token?
007A 26 04      R08  R08M0      Jump if not
007C 86 0F      LDX  R088M      Remember TR08 ?
007E 35 91      FILS  PC,X,CC
0080 35 11      R08M1  FILS  X,CC
0082         R08M0  R08  3
0083         +

```

Figure 2 — Hexdump

```

3100 182 1 121 167 140 74 234 1 = 940
3208 113 239 140 69 182 1 160 167 = 1080
3818 140 84 234 1 161 239 140 79 = 1098
3824 51 140 58 235 1 181 51 140 = 855
3132 17 235 1 127 134 128 183 1 = 829
3140 160 183 1 121 206 139 141 233 = 1174
3148 157 57 129 144 38 26 50 94 = 499
3156 158 25 157 159 39 8 189 134 = 849
3164 154 189 131 255 37 5 48 11 = 850
3172 159 31 57 198 14 128 131 68 = 804
3180 57 198 84 52 17 134 99 140 = 751
3188 158 238 10 8 129 164 58 4 = 757
3196 134 191 53 143 53 17 0 0 = 391

```

Figure 3 — Test program

```

10 INPUT "RESTORE TO (1 TO 5)?: "I
20 IF I<1 OR I>5 THEN PRINT "OUT OF RANGE" : GOTO 80
30 ON I GOSUB 110,120,130,140,150
40 READ A$ : PRINT A$
50 GOTO 10
110 RESTORE 300 : RETURN
120 RESTORE 510 : RETURN
130 RESTORE 520 : RETURN
140 RESTORE 530 : RETURN
150 RESTORE 540 : RETURN
300 DATA "DATA LINE 1"
510 DATA "DATA LINE 2"
520 DATA "DATA LINE 3"
530 DATA "DATA LINE 4"
540 DATA "DATA LINE 5"

```

The Answer

This is Gordon Lee's own solution to the December competition. See page 28 for results.

ANSWER The solutions should be performed as follows:

A P H M H O R S T W
4 4 2 7 6 5 8 1 0 3

That SANTA = 19829 (a prime number)
PINROT = 49218 (a multiple of 7)
MORPH = 55203 (a multiple of 11)
SNOWMAN = 1952795 (1952 rotated)

Sold on The problem is solved by using the three programs given, plus some cross checking of results. First, we need to list all three square numbers which have seven digits, have the second digit the same as the seventh, and have all other digits all even. This results in seven possibilities as listed in table 1. From this we can note that possible values for SANTA. We know that M must be 8 and S can only be 1, 4 or 9. A 9 is have already observed must be 1, 3, 7 or 8. This is included in listing one at line 40 in the program. Line 50 rejects all squares in which the second and seventh digits do not match, and lines 60 to 80 find that whether digits are different. This results in seven possibilities as listed in table 1. From this we can now find possible values for SANTA. We know that W must be 8 and S can only be 1, 4 or 9. A 9 is have already observed must be 1, 3, 7 or 8.

Program listing two tests these known values and finds possible values P for letter T which form prime numbers. As we do this primes up to 1000000000000000. The primes listing two. We know from our knowledge that SANTA can only equal either 178, 195, 276, 498, 816 or 900 so all primes which do not begin with these digits are crossed off the list. The digit represented by the letter T is also checked against the relevant digits in the seven digit number so cannot be arranged from. Further numbers can then be crossed off the list. For example, the prime 19827 has the subdigits S=1, A=2 and P=8 so it must be paired with the snowman subdigit on for 198295. Instead one the T is represented by a digit 2 but this is already in snowman where it represents an O. Therefore the prime above is not possible.

The results of a few possible pairings of SNOWMAN and SANTA, and from these the digits represented by the letters OST can be found in each case.

SNOWMAN	SANTA	OST
5520376	19829	295
5520716	19829	810
2543876	27697	421
2543876	27697	429
4921876	49875	042
4921876	49875	048
4920716	49821	042
4920716	49821	048
4920716	49821	046
8040495	81621	592
8040495	81621	498

We now need to find all five-digit multiples of 7 which end in the OST digits

from the above table. This is done using listing three, line 40 eliminating all values which do not end in the required digits. Each entry is then tested to ensure it has all figures different. The results are given in table 3. The two new digits are represented by the letters P and Q. These compared with the digits in SNOWMAN and SANTA in

each case. These in which the digits are duplicated can be crossed off the 3. We are left with impossible sets of figures. In each case we have a substitution for eliminated set. If these found a second MORPH, whereas multiplied 11. If the substitution is made, only one case out of the ten will produce the required result.

Listing 1 - Snowman

```

10 FOR N=1111 TO 3162
20 S=NO(SQ=STR$(S)) : SQ=MID$(SQ,2)
30 V=VAL(RIGHT$(SQ,5,1))
40 IF V=0 OR V=2 OR V=4 OR V=6 OR V=8 OR V=9 THEN 110
50 IF MID$(SQ,3,1)>MID$(SQ,7,1) THEN 110
60 SQ=LEFT$(SQ,1)+RIGHT$(SQ,5):FL=0
70 FOR F=1 TO SQ FOR G=F+1 TO 6
80 IF MID$(SQ,F,1)=MID$(SQ,G,1) THEN FL=1
90 NEXT G NEXT F
100 IF FL=0 THEN PRINT N ; " " ; N*N
110 NEXT N
    
```

Listing 2 - Santa

```

10 FOR S=1 TO 9
20 IF S=2 THEN S=4
30 IF S=8 THEN S=9
40 FOR A=1 TO 9 STEP 2
50 IF A=5 THEN A=7
60 IF A=9 THEN 170
70 FOR T=0 TO 9
80 IF T=8 OR T=9 OR T=0 THEN 160
90 SANTA=S*10000+A*1000+G*100+T*10+A
100 L=INT(T/SQR(SANTA)+.1)
110 FL=0
120 FOR P=2 TO LINT STEP 2
130 IF SANTA/P=INT(SANTA/P) THEN FL=L*P=LINT
140 NEXT P
150 IF FL=0 THEN PRINT SANTA
160 NEXT T
170 NEXT A
180 NEXT S
    
```

Listing 3 - Frost

```

10 FOR N=10000 TO 99999 STEP 7
20 S=NO(SQ=STR$(S)) : SQ=MID$(SQ,2)
30 V=VAL(RIGHT$(SQ,3))
40 IF V=215 OR V=910 OR V=421 OR V=429 OR V=42 OR V=48 OR V=342 OR V=348 OR V=348 OR V=342 OR V=498 THEN 50 ELSE 90
50 FL=0 : FDP F=1 TO 4 FOR G=F+1 TO 5
60 IF MID$(SQ,F,1)=MID$(SQ,G,1) THEN FL=1
70 NEXT G NEXT F
80 IF FL=0 THEN PRINT N
90 NEXT N
    
```

Table 1

129	1620076
128	1803758
708	2843876
2148	4820716
2784	6828716
3184	8040495
3788	8040495

Table 2

19829	49875
49821	81621
27697	81621
27697	81621
49875	81621
49821	81621

Table 3

27648	22822
48298	68278
80420	68240
50468	27648
51420	68242

have if your heroine proves a slayer — and believe me, they do give us as you go along and push up the limits of the adventurer's trade.

Dragon Calling of High Road: Soon! Rogues and bandits definitely terrify you a lot in Calico (and/or Stonegrave) which is a bit hard to find, remember it's easy and yet other adventures are seriously struggling with it, there are a lot of Duns on a map to be going on with. In Ostab's Island, if you can't get out of the first few rooms, **GUARD!** If you can't get out of the storage center, **HELLHOUND GARDYNO!** **Dragon!** If you can't get upriver, **STOOD CHYTRACH!** If you want the machine, **GUN-DY EDART!**

In Stonegrave if you don't know which mailbox to open, **ROOD ENT TA, ROOL!** If rogues prove to be a problem, **EPHAK NEM!** If you can't find your way out of the city streets, **RECA SURK!** To get past the snake, **ROORMAIS ENT FORD!** And if you can't get across the river, **RAES WAS!** Duncan will answer any of your other questions on these adventures in exchange for the usual

SAE, and that obviously also applies when writing to anyone else in these pages — and that includes me! In fact the posting seems to be dwindling a little since the magazine went subscription only. It does make life easier, but it's not half as interesting. Perhaps you might be more inclined to write if I wrote

you with another invite — the time I sold on for The Motes Dragon which I know lots of people have had problems with. And while you're writing, let me what else you've been up to — in the world of adventures that is. This is The Dragon User after all, not the News of the World.

Adventure Contact

To help printed adventures further we are now doing an Adventure Helpline — simply find the coupon below, put in the name of the adventure you need help with your name and address, and send it to Dragon User, Adventure Help

line, 1270, it is to Dragon User, London EC2M 1PP. As soon as enough entries have arrived we will be printing them in the magazine.

Don't worry — you'll still have Adventure User to refer to if you want!

Adventure:
Problem:
Name:
Address:

Adventure Contact

Adventure: 02 | **Problem:** 02
Tropicoad

Problem: 01 | remove
skeletons and try to cross the
bridge and a bridge 03
Dwyring!

Name: Mark Jackson
Address: Daxden, Wiltshire
18 U. Hill Lane, Chestnut
Road, Chippenham

Adventure: Engraved
Problem: I have found the

body but cannot get any further
in the adventure! Help!

Name: Mick Coates
Address: 16 Wilton Green
Muir, North Stoneham Road
ST3 7LZ

Adventure: Sea Dragon
Problem: I have a map of the island
coloured over, the bridge and
Fongus and I'm left in a maze.
SOS

Name: Jon Street

Address: 73 Amersham Dr
Kilham, Malmesbury, Wiltshire
(and another Jon)

Adventure: Redoubt

Problem: How do I open the
cabinet and the cabinet panel
and where will the special
key be? (SOS)

Name: Alexander Holm
Address: Høgveien 3d,
6010 OSLO, Norway

Adventure: Return of the King
Problem: I have got the time
right but cannot win! What do
I do next?

Name: Derek Stanbrook
Address: Ashfold Cottage
Hoad Green, Horforth, York

Adventure: Robin Hood
Problem: How do I get the
bow? What do I do in the
cave?

Name: Johan Konrad
Address: 2617 Pichstein, Norway

Communication

Problem: Where do I get a copy of
paper on a roll for my Gemini
16K printer (ratings quality).
Enquirer: John Appleyard, 17
Carr Bridge Avenue, Leeds
LS16 3JZ

Problem: I want a copy of (I
don't know) the manual for
my IBM Basic Compiler in
anybody's selling books or does
anybody know where I can get
a copy?

Enquirer: John Foster, 94 The
Dial, Fifth Park, Sheffield S6
6SP

Problem: Does anyone know
where I can get a copy of
Dragon Code's information for
Machine Code Users also a
new copy of the circuit
diagrams (these are getting a
bit out of date)?

Secondly: Does anyone
know what I can get details

for on the circuits and software
as mentioned in Disc
Investment and Computing Monthly
for connecting a Dragon to a
BBC a later dated 1983?
Enquirer: D. Lacey, 10
Brynford, Dagen, Tysock
Sutton, 9 West, S62 6BT

Problem: Can anyone suggest
a top-quality solution to care of
errors on an Omega cassette
recorder?

Enquirer: Paul Gray, 17
Bathurst Close, Rye, East
Sussex BN21 1AA

Problem: As I now have a high
quality printer I am in a position
to offer a service. For 50p per
1000 lines I can print single or
multiple copies of your Basic
programs (for users worth over
75 pounds program
However I desperately need

a high quality 16 line screen
display like the Gen which ap-
peared in February 1983's
Dragon User. I shall be com-
patible with the Panasonic
32 P1000

Enquirer: R. B. Rogers, 25 El-
lyngton, Kings Lynn, Norfolk
PE33 4TB

Problem: Does anyone have
any Dragon Users from 1980

Write down your problems on the coupon below (make it as clear
and legible as possible) together with your name and address
and send it to Communications, Dragon User, 1270 Little
Portland Street, London WC2H 9PP

Problem:
Name:
Address:

which they could help?
Enquirer: Peter Heilbrigg, 2
Inghy Road, Wigton,
Leicester LE1 1DG

Problem: Can anyone in
Britain tell me where to get all
pages for my Brother P115. I
have tried everywhere I know.
Enquirer: Desmond King, 68
Pittman St, Garsow Road,
Bolton BL7 2PH

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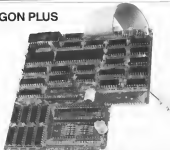
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